INCH-POUND
A-A-55697A
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SUPERSEDING
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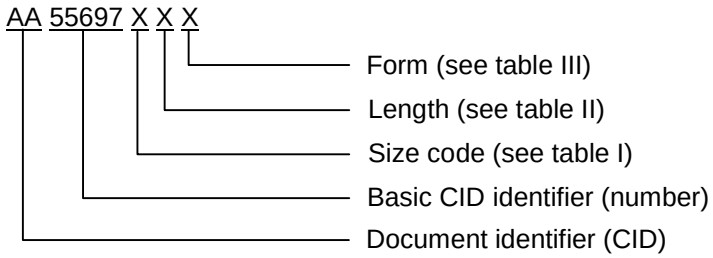
COMMERCIAL ITEM DESCRIPTION

TUBE, NONMETALLIC; POLYVINYL CHLORIDE (PVC) FLEXIBLE (FOR LABORATORY AND MEDICAL USE)

The General Services Administration has authorized the use of this commercial item description (CID) for all federal agencies.

1. SCOPE. This CID covers the general requirements for clear flexible PVC tubing. Clear flexible PVC tubing covered by this CID is intended for commercial/industrial applications in medical and laboratory procedures, including but not limited to transfusions and infusions.

2. CLASSIFICATION. This CID uses a classification system which is included in the Part Identification Number (PIN) as shown in the following example (see 7.1).



2.1 Sizes. Plastic tubing shall be of the nominal inside diameter (ID), outside diameter (OD) and wall thickness (WT), as specified in table I.

Beneficial comments recommendations, additions, deletions, clarifications, etc. and any data that may improve this document should be sent to: Defense Supply Center, Columbus, ATTN: DSCC-VAI, P.O. Box 3990, Columbus, OH 43216-5000, or telephone (614) 692-0538, or facsimile (FAX) (614) 692-6939.

AMSC N/A FSC 4720

TABLE I. Inside/outside diameter and wall thickness of tubes.[1/]

Nominal ID [2/]		OD		nominal WT [3/]		Size code
(inch)	(mm)	(inch)	(mm)	(inch)	(mm)	
0.125	(3.2)	0.1875	(4.8)	0.0313	(0.8)	01
0.1563	(4.0)	0.2813	(7.1)	0.0625	(1.6)	02
0.1875	(4.8)	0.3125	(7.9)	0.0625	(1.6)	03
0.2500	(6.4)	0.3750	(9.5)	0.0625	(1.6)	04
0.3125	(7.9)	0.4375	(10.5)	0.0625	(1.6)	05
0.3750	(9.5)	0.5000	(12.7)	0.0625	(1.6)	06
0.3750	(9.5)	0.6250	(15.9)	0.1250	(3.2)	07
0.5000	(12.7)	0.7500	(19.1)	0.1250	(3.2)	08
1.0000	(25.4)	2.0000	(50.8)	0.5000	(12.7)	09

Notes: 1/ Sizes other than those shown in table I may be ordered by specifying dimensional data in lieu of PIN (see 7.1).
2/ Tolerance on inside diameter for all sizes shall be ±.0156 inch (0.4 mm).
3/ Tolerance on wall thickness for all sizes shall be minus 0 or plus .0156 inch (0.4 mm).

3. SALIENT CHARACTERISTICS.

3.1 Description. Tubing provided in accordance with this CID shall be colorless, clear, and flexible PVC.

3.2 Dimensioning. The values stated in inch-pound units are to be regarded as the standard. The metric values stated in parentheses throughout this CID are for informational purposes only and have been rounded to only one decimal place for convenience.

3.3 Lengths. Tubing shall be furnished in the length specified in table II (see 7.4c).

TABLE II. Tubing lengths.

Length		Length code
50 Feet	15.24 meters	A
100 Feet	30.48 meters	B
250 Feet	76.20 meters	C
500 Feet	152.40 meters	D
1000 Feet	304.80 meters	E

3.4 Form. Tubing shall be furnished in the form specified in table III (see 7.4c).

TABLE III. Tubing forms.

Form	Form code
Coils	1
Reels	2
Straight	3

3.5 Flexibility. Tubing shall be capable of bending around a mandrel equal to five times the OD of the tube without collapsing or restricting flow.

3.6 Physical properties. Physical properties of the tubing shall be as specified in table IV when tested in accordance with the test method shown.

TABLE IV. Physical properties.

Property	Requirement	Test method (ASTM)
Brittleness temperature, ºF	-50.8 (-46ºC)	D746
Specific gravity	1.15 - 1.80	D792
Tensile strength, psi	1800 - 2100	D638
Elongation, percent	300 minimum	D638

3.7 Chemical resistance. Tubing shall not discolor, flake, crack or pit when tested in accordance with USP-NF, Physicochemical Tests-Plastics, ASTM D1003, Standard Method of Test for Haze and Luminous Transmittance of Transparent Plastics, and ASTM E308, Standard Practice for Computing the Colors of Objects by Using the CIE System.

3.8 Sterilization. Tubing shall be capable of withstanding sterilization by steam, ethylene oxide, radiation, or other method that meets the requirements of the USP-NF, Sterility Tests for Transfusion and Infusion Assemblies and Similar Medical Devices.

3.9. Heat resistance. Tubing shall be capable of withstanding temperatures of 200±5 ºF (93.3±2.8 ºC) for one hour without visual signs of deterioration such as discoloring, flaking, cracking, pitting, hardening, or melting.

3.10 Biological reactivity. Tubing shall meet the requirements of USP Class II plastics and the Association for the Advancement of Medical Instrumentation, AAMI/ANSI 10993-1.

3.11 Metal content. The use of hazardous materials shall be eliminated or minimized where possible. Tubes shall not contain more than five parts per million (ppm) of heavy metals, such as lead, in their ash residue when tested as follows:

Two sample tubes shall be selected at random from each lot (lot is defined as a continuous run of tubing from the same batch or raw material, and offered for delivery under one contract). From each sample accurately weigh a 0.176 oz. (5 gm) sample into one-ounce Vycor crucibles. Reduce to ash in a muffle furnace at 1202ºF (650ºC) for 8 hours. Let cool to room temperature and add 0.507 fluid ounces (15 ml) of 1:1 hydrochloric acid. Bring to a boil on a hot plate, allow to boil for two to three minutes, remove, let cool and filter through Whatman #2 filter paper into a 1.691 fluid ounces (50 ml) volumetric flask. Rinse the residue from the filter with deionized water and dilute to 1.691 fluid ounces (50 ml). Prepare standard lead solutions of one, two, and five ppm lead. Determine the absorbencies of these solutions at the 283 millimicron wavelength using a Hollow Cathode Pb lamp and 10x scale expansion on a spectrophotometer, such as the Perkin-Elmer Model 303 Atomic Absorption Spectrophotometer. Determine the absorbance of the sample solutions using the same conditions as with the standards.

Calculation: $$\text{Lead content, ppm} = \frac{A*F*\text{dilution}}{W}$$

A = Absorbance

$$F = \text{Factor} = \frac{\text{(Concentration standard in ppm Pb)}}{\text{absorbance}}$$

W = Sample weight in grams

The calculated factors of the three standards are averaged to give ppm/unit A.

3.12 Identification of known leaching fluids. Each separate package of tubing shall contain information warning about known fluids that could interact with constituent materials of the tubing resulting in dispensing tubing material with the fluid.

3.13 Marking. Tubing supplied to this CID shall be marked with the manufacturer's (MFR's) standard commercial PIN or as specified in the contract or purchase order (see 7.4e).

3.14 Workmanship. The quality of workmanship shall be such as to produce hose and hose assemblies that are in accordance with the requirements of this CID. Tubes shall be free from blemishes and flaws which affect their serviceability or mar their appearance.

4. REGULATORY REQUIREMENTS.

4.1 Recovered material. The offeror/contractor is encouraged to use recovered material to the maximum extent practicable, in accordance with paragraph 23.403 of the Federal Acquisition Regulation (FAR).

5. PRODUCT CONFORMANCE PROVISIONS.

5.1 Responsibility for inspection. The contractor is responsible for the performance of all inspections (examinations and tests).

5.2 Product conformance. The contractor shall certify and maintain substantiating evidence that the products provided meet the salient characteristics of this CID; conform to the producer's own drawings, specifications, standards, and quality assurance practices; and be the same product offered for sale in the commercial marketplace. The Government reserves the right to require proof of such conformance prior to first delivery and thereafter as may be otherwise provided for under the provisions of the contract or order.

6. PACKAGING.

6.1 Preservation, packaging, and packing. Preservation, packaging, and packing shall be as specified in accordance with ASTM D3951, Standard Practice for Commercial Packaging, or as specified in the contract or purchase order (see7.4d).

7. NOTES.

7.1 Part or identification number (PIN). The PIN should be used for Government purposes to buy commercial products to this CID. See section 2 for PIN format example.

7.2 Commercial and Government Entity (CAGE) code. For ordering purposes, inventory control, and submission of this tubing to DSCC under the Military Parts Control Advisory Group (MPCAG) evaluation program, CAGE code 58536 should be used.

7.3 Source of documents.

Federal Acquisition Regulations

FAR 23.403 - Environment, Conservation, Occupational Safety, And Drug-Free Workplace; Use Of Recovered Materials; Policy

(The Federal Acquisition Regulations may be obtained from the Superintendent of Documents, U. S. Government Printing Office, Washington, DC 20402 or from the internet at http://www.arnet.gov/far/.)

Non-Government publications

ASSOCIATION FOR THE ADVANCEMENT OF MEDICAL INSTRUMENTATION (AAMI)

AAMI/ANSI 10993-1 - Biological Evaluation of Medical Devices

(Copies of AAMI/ANSI standards are available from the Association For The Advancement Of Medical Instrumentation, Suite 400, 3330 Washington Blvd., Arlington, VA 22202.)

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

ASTM D638	-	Standard Test Method for Tensile Properties of Plastics
ASTM D746	-	Standard Test Method for Brittleness Temperature of Plastics and Elastomers by Impact
ASTM D792	-	Standard Test Methods for Density and Specific Gravity (Relative Density) of Plastics by Displacement
ASTM D1003	-	Standard Test Method for Haze and Luminous Transmittance of Transparent Plastics
ASTM D3951	-	Standard Practice for Commercial Packaging
ASTM E308	-	Standard Practice for Computing the Colors of Objects by Using the CIE System

(Copies of ASTM standards are available from the American Society for Testing and Materials, 100 Barr Harbor Drive, West Conshohocken, PA 19428-2959.)

UNITED STATES PHARMACOPEIA (USP)

USP-NF	-	Physicochemical Tests-Plastics
USP-NF	-	Sterility Tests for Transfusion and Infusion Assemblies and Similar Medical Devices

(Copies of USP-NF standards may be obtained from United States Pharmacopeia by submitting requests to Printing Company, 20th and Northampton Streets, Easton, PA 18942 or by contacting U. S. P. customer services, 12601 Twinbrook Parkway, Rockville, MA 20852.)

7.4 Ordering data. The contract or order should specify the following:

a. Title, number, and date of the CID.
b. Size code and wall thickness (see table I and 7.1.2).
c. Length (see table II, 3.3 and 7.1.2) and form (see table III, 3.4 and 7.1.2) required.
d. Applicable level of preservation, packaging, and packing (see 6.1).
e. Applicable marking and labeling (see 3.12 and 3.13).
f. Quantity of tubing required.

7.5 Commercial products. As part of the market analysis and research effort, this CID was coordinated with the following manufacturers of commercial products. At the time of CID preparation and coordination, these manufacturers were known to have commercial products that would meet the requirements of this CID. (NOTE: This information should not be considered as a list of approved manufacturers or be used to restrict procurement to only the manufacturers shown.)

TABLE IV. MFR's contact information.

MFR's CAGE	MFR's contact information
1L0C5	HARRISON HOSE AND TUBING INC 2705 KUSER RD TRENTON, NJ 08691 Voice Telephone: 609-631-8804 FAX: 609-631-8796
1V630	F AND R SALES INC 109 GAUNTT ST PO Box 189 BURLINGTON, NJ 08016 Telephone: 609-387-7722 FAX: 609-387-7744
0AMA0	DYNAMATION RESEARCH INC 2301 PONTIUS AVE LOS ANGELES, CA 90064 Telephone: 310-477-1224 FAX: 310-479-5656 http://www.dynamation.com/
15761	FOURNIER RUBBER AND SUPPLY CO 1341 NORTON AVE PO Box 548 COLUMBUS, OH 43212-3158 Telephone: 614-294-6453 FAX: 614-294-0644

7.6 Part number (P/N) supersession data. These CID part numbers supersede the following MFR's P/N's as shown. This information is being provided to assist in reducing proliferation in the Government inventory system.

TABLE V. P/N supersession data.

Dash number (see table I,II, & III) A-A-55697	MFR's CAGE	MFR's P/N 1/	Dash number (see table I,II, & III) A-A-55697	MFR's CAGE	MFR's P/N 1/
01A1	1L0C5	10-01A1	06B2	1L0C5	10-06B2
02A1	1L0C5	10-02A1	07B2	1L0C5	10-07B2
03A1	1L0C5	10-03A1	08B2	1L0C5	10-08B2
04A1	1L0C5	10-04A1	09B2	1L0C5	10-09B2
05A1	1L0C5	10-05A1	01B3	1L0C5	10-01B3
06A1	1L0C5	10-06A1	02B3	1L0C5	10-02B3
07A1	1L0C5	10-07A1	03B3	1L0C5	10-03B3
08A1	1L0C5	10-08A1	04B3	1L0C5	10-04B3
09A1	1L0C5	10-09A1	05B3	1L0C5	10-05B3
01A2	1L0C5	10-01A2	06B3	1L0C5	10-06B3
02A2	1L0C5	10-02A2	07B3	1L0C5	10-07B3
03A2	1L0C5	10-03A2	08B3	1L0C5	10-08B3
04A2	1L0C5	10-04A2	09B3	1L0C5	10-09B3
05A2	1L0C5	10-05A2	01C1	1L0C5	10-01C1
06A2	1L0C5	10-06A2	02C1	1L0C5	10-02C1
07A2	1L0C5	10-07A2	03C1	1L0C5	10-03C1
08A2	1L0C5	10-08A2	04C1	1L0C5	10-04C1
09A2	1L0C5	10-09A2	05C1	1L0C5	10-05C1
01A3	1L0C5	10-01A3	06C1	1L0C5	10-06C1
02A3	1L0C5	10-02A3	07C1	1L0C5	10-07C1
03A3	1L0C5	10-03A3	08C1	1L0C5	10-08C1
04A3	1L0C5	10-04A3	09C1	1L0C5	10-09C1
05A3	1L0C5	10-05A3	01C2	1L0C5	10-01C2
06A3	1L0C5	10-06A3	02C2	1L0C5	10-02C2
07A3	1L0C5	10-07A3	03C2	1L0C5	10-03C2
08A3	1L0C5	10-08A3	04C2	1L0C5	10-04C2
09A3	1L0C5	10-09A3	05C2	1L0C5	10-05C2
01B1	1L0C5	10-01B1	06C2	1L0C5	10-06C2
02B1	1L0C5	10-02B1	07C2	1L0C5	10-07C2
03B1	1L0C5	10-03B1	08C2	1L0C5	10-08C2
04B1	1L0C5	10-04B1	09C2	1L0C5	10-09C2
05B1	1L0C5	10-05B1	01C3	1L0C5	10-01C3
06B1	1L0C5	10-06B1	02C3	1L0C5	10-02C3
07B1	1L0C5	10-07B1	03C3	1L0C5	10-03C3
08B1	1L0C5	10-08B1	04C3	1L0C5	10-04C3
09B1	1L0C5	10-09B1	05C3	1L0C5	10-05C3
01B2	1L0C5	10-01B2	06C3	1L0C5	10-06C3
02B2	1L0C5	10-02B2	07C3	1L0C5	10-07C3
03B2	1L0C5	10-03B2	08C3	1L0C5	10-08C3
04B2	1L0C5	10-04B2	09C3	1L0C5	10-09C3
05B2	1L0C5	10-05B2			

Note: 1/ The manufacturer's P/N shall not be used for procurement to the requirements of this CID. At the time of preparation of this CID, the aforementioned commercial products were reviewed and could be replaced by the CID PIN shown. For actual part marking requirements see 3.13.

7.7 Government users. To acquire information on obtaining tubing from the Government inventory system, contact DSCC Call Center (DSCC-NAB), Post Office Box 3990, Columbus, OH 43216-5000, or telephone (614) 692-2271 or –3191.

7.8 Subject term (key word) listing.

Clear tubing
Colorless tubing
Infusions
Metal concentration
Plastic
Transfusions

CONCLUDING MATERIAL

MILITARY INTERESTS:

Custodians:
Army – AV
Navy – SH
Air Force – 99

Review activities:
Navy – AS, NP, SA
Air Force – 03, 71

CIVIL AGENCY COORDINATING ACTIVITY:

GSA – FSS
IHS
NIH

Preparing activity:

DLA – CC

(Project 4720-0325)